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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/606,854

06/26/2003

Jeffrey R. Hartlove

NGC-00050 (48-0032)

5851

7590

02/10/2005

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EXAMINER

NGUYEN, TUAN N

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,854

Applicant(s)

HARTLOVE ET AL.

Examiner

Tuan N Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 21-25, 27-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/26/2003.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. 1/31/05.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of 35 U.S.C. 102(b) which forms the basis for all obviousness rejections set forth in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 6, 8-10, 21- 24, 27, 31-33, 35, 37, 38 are rejected under 35 U.S.C. 102(a) as being unpatentable over Kooijman et al. (Prepulse enhanced EUV yield from a xenon gas-jet laser produced plasma, Physics, Central Laser Facility Annual Report 2001/2002, p.142-144).

With respect to claims 1, 21, 22 and 33 Kooijman et al. discloses an prepulsed enhanced EUV yield from a xenon gas-jet laser produced plasma (TITLE), having a device for generating a stream of target material towards a target area (Fig 1: nozzle), a first pre-pulse laser beam, and a second main laser direct to target (Fig 1: Main pulse, pre-pulse), where pre-pulse has lower intensity arrive to target area before a main pulse laser to generate EUV radiation (Page 142: Col 1,2; Experimental Set Up) (Page 143: Conclusion section). Since claim 33 recites the same or identical limitations it is inherent to use Kooijman et al. to recite the method of generating EUV radiation, product by process.

With respect to claims 2, 27, 37 (Figure 1: Main Pulse, Pre-pulse) shows the two pulses separated by an angle *in the range of 0-180 degree(s)* at the target area, where the beams entered the chamber at right angle.

With respect to claims 6, 23, 24, 35 it is inherent there is a controller within the system, controlling the different timing between the two pulses (Page 142: Col 1: Introduction). Also,

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Kooijiman et al. discloses (Page 142: Col 2) “varying the time delay between the pulses preconditioning target will optimize EUV emission”.

With respect to claims 8, 31 Kooijiman et al. discloses (Page 142: Col 1: Experimental Set Up) “the low energy is 10mJ” and the main pulse is 350mJ”.

With respect to claims 9, 10, 32, 38 Kooijiman et al. discloses (Page 142: Col 1: Introduction) “the stream of target materials is selected from gaseous, liquid such as xenon produced by sonic or supersonic via the nozzle”.

With respect to claims 5, 7, 25, 30, 34, 36 the claims further require that the delay between the main and prepulse is in the range of 20-200ns, or the timing between main beam and pre-pulse beam is less then 160ns. Kooijiman et al. discloses (Page 142: Col 2) “varying the time delay between the pulses preconditioning target will optimize EUV emission” and “the delay between 30ns and 200ns or longer”. (Page 143: Conclusion)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or non-obviousness.
4. Claims 3-5, 7, 25, 28-30, 34, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kooijman et al. (Prepulse enhanced EUV yield from a xenon gas-jet laser produced plasma, Physics, Central Laser Facility Annual Report 2001/2002, p.142-144).

With respect to claims 3-4, 28-29 Kooijman et al. shows (Figure 1: Main Pulse, Pre-pulse) shows the two pulses separated by an angle. The claims require that the beams separate by an angle about 30 or 90 degrees. It has been held, that discovering the optimum or workable ranges involves only routine skill in the art, . *In re Aller*, 105 USPQ 233.

Communication Information

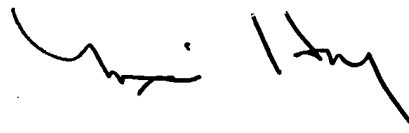
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (703) 308-16741. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen



MINSUN CH HARVEY
PRIMARY EXAMINER

